

**ABSTRACT OF THE DISCLOSURE**

One aspect of the present invention relates to a semiconductor structure, containing a semiconductor substrate; a resist over the semiconductor substrate; and a light-degradable surface coupling agent between the resist and the semiconductor substrate. Another aspect of the present invention relates to a method of processing a semiconductor structure, involving the steps of depositing a light-degradable surface coupling agent on a semiconductor substrate; depositing a resist over the light-degradable surface coupling agent; irradiating portions of the resist, wherein the light-degradable surface coupling agent under the irradiated portions of the resist at least partially decomposes; and developing the resist. Yet another aspect of the present invention relates to a semiconductor processing system, containing a processing chamber operable to form a light-degradable surface coupling agent layer on a substrate in the chamber; a supply of a light-degradable surface coupling agent; and a measurement system for in situ measuring a thickness of the light-degradable surface coupling agent layer being formed and for providing a measurement signal indicative of the measured thickness.